

What is claimed is:

1. A interconnect device for coupling a cellular telephone to at least one wired telephone via a wired telephone network, said interconnect device comprising, in combination,

a first short-range radio transceiver for exchanging voice and data signals with a second short-range radio transceiver in said cellular telephone,

an interface connected between said wired network and said first short-range transceiver for emulating a wired line connection from said wired telephone to a telephone central office, said interface including means for handling an outgoing call from said wired telephone via said cellular phone comprising:

means for indicating the availability of an idle line when said first and second transceivers are within communicating range of one another and said cellular telephone is not already in use,

means for receiving a telephone number to be called via said wired network from said wired telephone, and

means for transmitting said telephone number via said first and second transceivers to said cellular telephone to initiate said outgoing call, and

means for handling an incoming call to said cellular phone from an outside caller comprising:

means for applying a ringing signal to said wired network when an incoming call is detected by said cellular phone,

means responsive to said wired telephone thereafter going off-hook for establishing an audio transmission channel between said cellular phone and said wired telephone via said wired network and said first and second transceivers, and

means responsive to said wired telephone thereafter going on-hook for disconnecting said audio transmission channel and for signaling said cellular phone to terminate the connection via said cellular telephone to said outside caller.

2. A interconnect device as set forth in claim 1 wherein said interface includes a switch for selectively connecting said wired telephone network either to said first short-range transceiver or to a wired trunk line to a telephone central office.

3. A interconnect device as set forth in claim 2 wherein said switch is responsive to a control signal from said wired telephone.

4. A interconnect device as set forth in claim 2 wherein said interface includes means for sending a call waiting signal to said wired telephone when a call is in progress via either said first transceiver or said wired trunk line and a new incoming call is received by said interface from said first transceiver or said wired trunk line.

5. A interconnect device as set forth in claim 1 wherein said means for indicating the availability of an idle line comprises means for applying a dial tone to said wired network.

6. A interconnect device as set forth in claim 5 wherein said means for receiving a telephone number to be called comprises means for receiving DTMF signals from said wired network and converting said signals into equivalent data signals sent via said first radio transceiver to said second radio transceiver.

7. A interconnect device as set forth in claim 1 wherein said first and said second short-range radio transceivers operate in accordance with the Bluetooth Specification.

8. A interconnect device as set forth in claim 7 wherein said means for indicating the availability of an idle line comprises means for applying a dial tone to said wired network.

9. A interconnect device as set forth in claim 8 wherein said means for receiving a telephone number to be called comprises means for receiving DTMF signals from said wired network and converting said signals into equivalent data signals sent via said first radio transceiver to said second radio transceiver.

10. A interconnect device as set forth in claim 1 wherein said means for receiving a telephone number to be called comprises means for receiving DTMF signals from said wired

network and converting said signals into equivalent data signals sent via said first radio transceiver to said second radio transceiver.

11. A interconnect device as set forth in claim 1 wherein said wired telephone network includes a PBX connected by at least one trunk line to a telephone central office and wherein said interconnect device is connected to said PBX to provide the capabilities of an additional outside trunk line to said PBX

12. A interconnect device as set forth in claim 1 wherein said wired telephone network includes at least two parallel communication paths for handling at least two calls simultaneously and wherein said interface is connected to one of said two parallel communication paths.

13. A method for coupling a cellular telephone to at least one wired telephone on a wired telephone network comprising, in combination, the steps of:

- connecting an interface device between said wired telephone network and a first short-range radio transceiver for exchanging voice and data signals with a second short-range radio transceiver in said cellular telephone,

- employing said interface device to handle an outgoing call from said wired telephone via said cellular phone by performing the substeps comprising:

- indicating the availability of an idle line to said wired telephone when said first and second transceivers are within communicating range of one another and said cellular telephone is not already in use,

- receiving a telephone number to be called via said wired network from said wired telephone,

- transmitting said telephone number via said first and second transceivers to said cellular telephone to initiate said outgoing call, and

- establishing an audio transmission channel between said cellular telephone and said wired telephone via said wired network and said first and second transceivers after said outgoing call is initiated,

disconnecting said audio transmission channel and for signalling said cellular phone to terminate the connection via said cellular telephone to said outside caller when said wired telephone goes on-hook, and
employing said interface device for handling an incoming call to said cellular phone from an outside caller by performing the substeps comprising:
applying a ringing signal to said wired telephone network when said incoming call is detected by said cellular phone,
establishing an audio transmission channel between said cellular phone and said wired telephone via said wired network and said first and second transceivers when said wired telephone goes off-hook, and
disconnecting said audio transmission channel and for signaling said cellular phone to terminate the connection via said cellular telephone to said outside caller when said wired telephone goes on-hook.

14. A method as set forth in claim 13 wherein said first and said second short-range radio transceivers operate in accordance with the Bluetooth Specification.

15. A method as set forth in claim 13 further including the step performed in response to a command from said wired telephone of selectively connecting said wired telephone network either to said first short-range transceiver or to a wired trunk line to a telephone central office.

16. A method as set forth in claim 15 further comprising the step of sending a call waiting signal to said wired telephone when a call is in progress via either said first transceiver or said wired trunk line and a new incoming call is received by said interface from said first transceiver or said wired trunk line.

17. A method as set forth in claim 13 wherein said step of receiving a telephone number to be called comprises receiving DTMF signals from said wired network and converting said signals into equivalent data signals sent via said first radio transceiver to said second radio transceiver.

18. A method as set forth in claim 13 wherein said wired telephone network includes a PBX connected by at least one trunk line to a telephone central office and wherein said interconnect device is connected to said PBX to provide the capabilities of an additional outside trunk line to said PBX

19. A method as set forth in claim 13 wherein said wired telephone network includes at least two parallel communication paths for handling at least two calls simultaneously and wherein said interface is connected to one of said two parallel communication paths.